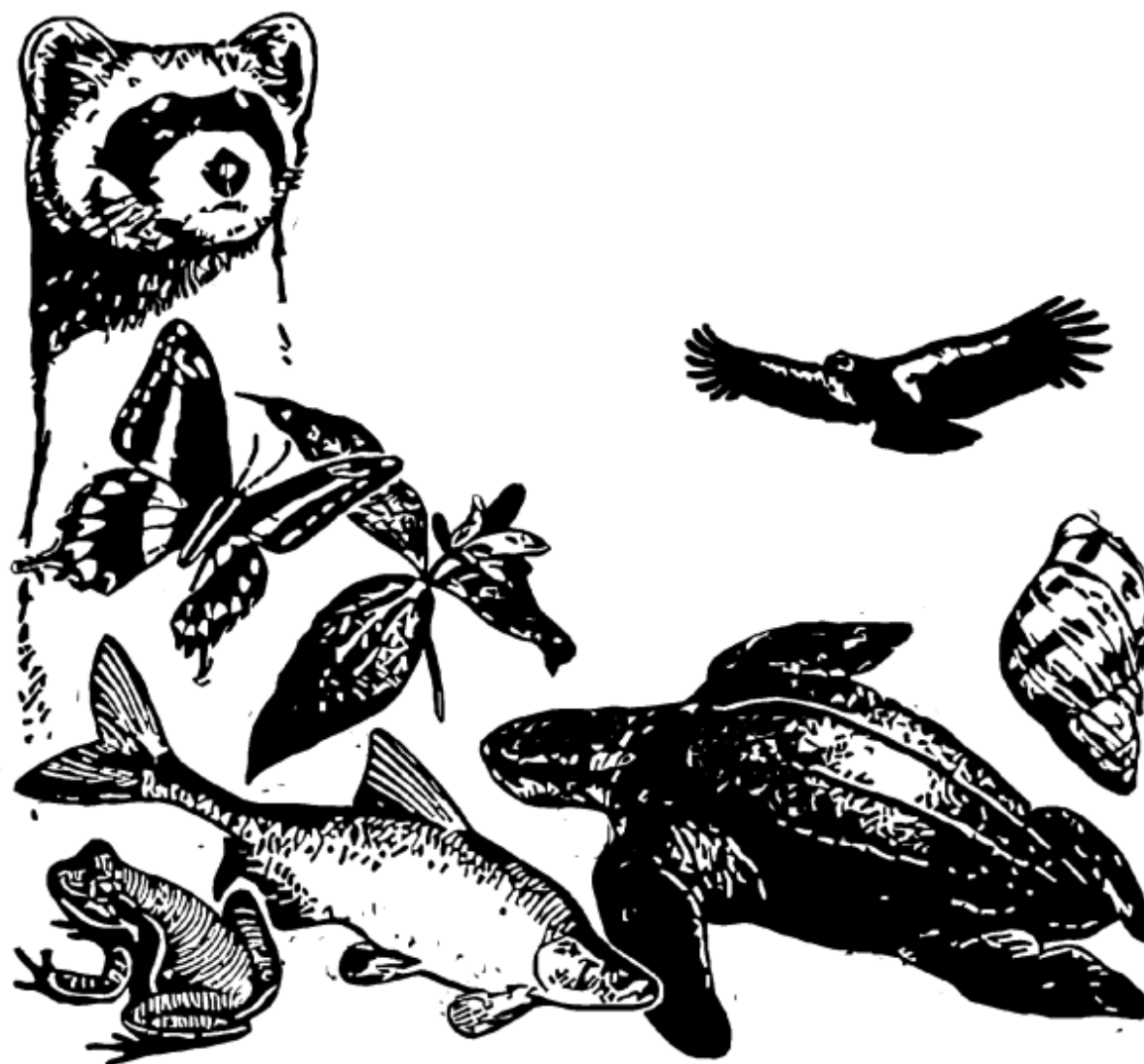


Indiana Bat Project Review in Michigan

Indiana Bat

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I. BACKGROUND INFORMATION

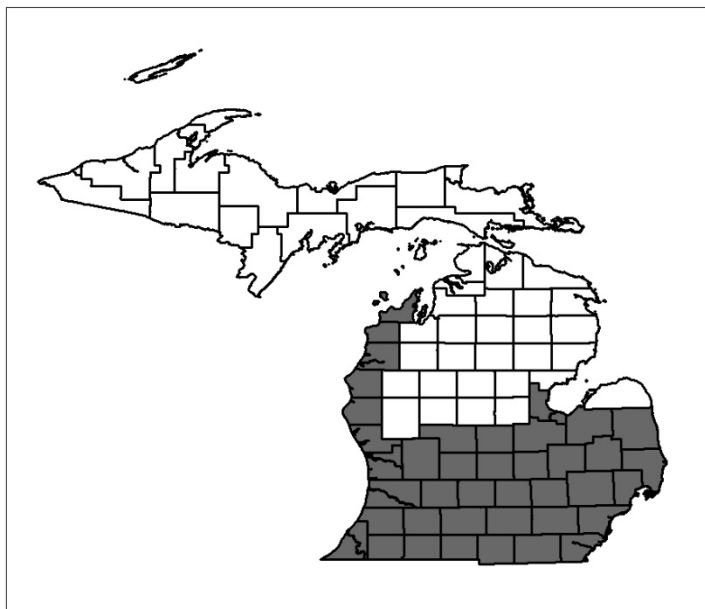
The Indiana bat was listed as endangered under the Endangered Species Act (ESA) in 1967 due to episodes of people disturbing hibernating bats in caves during winter, which resulted in the death of substantial numbers of bats. Indiana bats are vulnerable to disturbance because they hibernate in large numbers in only a few sites, with major hibernacula supporting 20,000 to 50,000 bats. Since it was listed as endangered, the range-wide Indiana bat population has declined by nearly 60%. Several threats are believed to have contributed to the Indiana bat's decline, including the commercialization of caves, loss and degradation of forested habitat, pesticides and other contaminants, and most recently, the disease white-nose syndrome (WNS).

Indiana Bat in Michigan

Indiana bats have been documented at many sites in Lower Michigan and are believed to range throughout the southern five county tiers, as well as parts of the thumb and the western coastal counties up to (and including) the Leelanau peninsula (see range map below). Michigan is home to a single known Indiana bat hibernaculum: a hydroelectric dam in Manistee County. Although the dam supports about 20,000 hibernating bats, Indiana bats comprise less than 1% of the winter population. Research suggests that the majority of the Indiana bats that summer in Michigan migrate to hibernacula in adjacent states, such as Indiana and Kentucky.

Like their overwintering sites, Indiana bats exhibit strong fidelity to their summer home ranges; however, we do not have knowledge of all of these summering areas in Michigan. Therefore, unless presence/absence surveys conducted in accordance with U.S. Fish and Wildlife Service (Service) guidelines

(<https://www.fws.gov/MIDWEST/Endangered/mammals/inba/inbasummersurveyguidance.html>, and also available via IPaC) indicate the probable absence of the species, Indiana bats are considered potentially present wherever suitable habitat exists within their range.



Range of the Indiana Bat in Michigan

Suitable Habitat for Indiana Bats:

During the winter, Indiana bats hibernate in caves, mines, or similar structures. Most major hibernacula for the species are found in Illinois, Indiana, Kentucky, Missouri, Tennessee, and West Virginia, and critical (winter) habitat has been designated in these states. Michigan is home to a single known Indiana bat hibernaculum, in Manistee County, and there is no designated critical habitat for the species in Michigan.

Suitable summer habitat for Indiana bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats, such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥ 5 inches dbh that have exfoliating bark or cracks/crevices), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure.

Individual trees may be considered suitable habitat when they exhibit characteristics of suitable roost trees and are within 1000 feet of other forested/wooded habitat. Southern Michigan maternity roost trees are typically dead or dying trees in open areas exposed to solar radiation. Infrequently, Indiana bats are observed roosting in human-made structures, such as buildings, barns, bridges, and bat boxes.

II. VOLUNTARY CONSERVATION MEASURES

Voluntary conservation measures that benefit the Indiana bat include protecting, creating, and enhancing mature forest, particularly hardwood/mixedwood stands containing standing snags, dying trees, vertical complexity, midstory/understory flight space, and waterbodies such as streams, ponds, and forested wetlands. As Indiana bats are known to avoid traversing large open areas outside of migration, preserving wooded corridors (such as tree lines) can be extremely beneficial in connecting fragmented patches of suitable roosting/foraging habitat.

Conserving Indiana bat habitat likely benefits the Federally threatened northern long-eared bat (*Myotis septentrionalis*) and other native bat species, several of which are experiencing recent population declines as a result of WNS and/or other factors. As significant predators of nocturnal insects, including many crop and forest pests, bats are important to Michigan's agriculture and forests. For example, Whitaker (1995)¹ estimated that a single colony of 150 big brown bats (*Eptesicus fuscus*) would eat nearly 1.3 million pest insects each year. Boyles et al. (2011)² noted that the "loss of bats in North America could lead to agricultural losses estimated at more than \$3.7 billion/year," and using their data for Michigan alone, we totaled the estimated value at over \$500 million per year (assuming standard crop pest survival). Taking proactive

¹ Whitaker, J.O. 1995. Food of the Big Brown Bat *Eptesicus fuscus* from Maternity Colonies in Indiana and Illinois. American Midland Naturalist 134(2):346-360.

² Boyles, J.G., P.M. Cryan, G.F. McCracken, and T.H. Kunz. 2011. Economic Importance of Bats in Agriculture. Science 332:41-42.

steps to help protect bats may be valuable to agricultural and timber producer yields and pest management costs.

Continue to the following sections for ESA guidance on Federal and non-Federal projects in Michigan. For more information on the Indiana bat, including life history information, designated critical habitat and draft recovery plan, please visit:

<https://www.fws.gov/midWest/endangered/mammals/inba/>

III. ESA GUIDANCE: PRIVATE LANDOWNERS/NON-FEDERAL PROJECTS

The Service does not require private landowners to conduct surveys for ESA-listed bats on their lands in Michigan. However, the bats and the habitats where they are known to occur are protected by the ESA. Under Section 9 of the ESA, it is unlawful for any person to “take” an endangered species. The term “take” is defined as, “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” “Harm” is further defined to include “significant habitat modification or degradation where it actually kills or injures wildlife by significantly impacting essential behavioral patterns, including breeding, feeding, or sheltering.”

In general, activities that impact suitable Indiana bat habitat have the potential to result in take. One of the most common activities impacting Indiana bat habitat is tree clearing during the summer season. Typically, incidental take associated with tree removal (i.e., trimming, cutting, girdling, burning) can be avoided by scheduling these activities during the winter hibernation period (October 1 through March 31), when Indiana bats have departed from summer habitat. As long as the scope of winter tree removal, in terms of acres, is not significant enough to constitute “harm,” effects to Indiana bats can be kept minimal or beneficial.

Permits and authorizations are required whenever incidental take of Indiana bats is reasonably certain to occur. If your project is likely to result in the take of Indiana bats, please contact the Michigan Ecological Services Field Office to determine if a permit pursuant to the ESA is warranted. For general information about take permits, visit:

<https://www.fws.gov/Midwest/endangered/permits/index.html>.

As a means to determine the likelihood of take, project proponents may be interested in documenting whether potential habitat is, in fact, occupied by Indiana bats. In such cases, presence/absence surveys conducted in accordance with current Service guidelines (<https://www.fws.gov/MIDWEST/Endangered/mammals/inba/inbasummersurveyguidance.html> and also available via IPaC) can inform project-specific conservation measures and the need for a permit.

Please note that projects that require State permits or authorizations that implement Federal laws or are supported by Federal funds (e.g., Clean Water Act, transportation projects) may have additional requirements under or similar to Section 7 of the ESA, as described in the following [section: IV. ESA GUIDANCE: FEDERAL PROJECTS](#).

IV. ESA GUIDANCE: FEDERAL PROJECTS

1. Standard Section 7 Consultation:

Under the ESA, requirements for Federal projects (i.e., projects funded, authorized, permitted, or implemented by a Federal agency) are different than requirements for wholly private or otherwise non-Federal projects. The ESA mandates all Federal departments and agencies to conserve listed species and to utilize their authorities in furtherance of the purposes of the ESA. Section 7 of the ESA, called “Interagency Cooperation,” is the mechanism by which Federal agencies ensure the actions they conduct, including those they fund or authorize, do not jeopardize the existence of any listed species.

Federal agencies must request a list of species and designated critical habitat that may be present in the project area from the Service (i.e., via IPaC, on our website at <https://www.fws.gov/midwest/Endangered/section7/spranges/MIs7listrequest.html>, or by contacting our office). Then they must determine whether their actions may affect those species or critical habitat. If a listed species or critical habitat may be affected, consultation with the Service is required.

Please note that Section 7 or similar obligations may also apply to State permits or authorizations that implement Federal laws or projects that are supported by Federal funds (e.g., Clean Water Act, transportation projects).

For general guidance on Section 7 obligations for Federal projects, and step-by-step instructions on the process, visit:

<https://www.fws.gov/midwest/Endangered/section7/s7process/index.html>.

2. Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat (optional for Federal transportation projects that may affect Indiana Bats):

The U.S. Fish and Wildlife Service and Federal Highway Administration (FHWA) have standardized their approach to assessing impacts to Indiana bats and northern long-eared bats (NLEB) from highway construction and expansion projects; then avoiding, minimizing and mitigating those impacts. This landscape-level conservation strategy encompasses the ranges of both bat species and provides transparency and predictability to FHWA and state Departments of Transportation (DOTs) through proactive planning. Information provided by this consultation and conservation strategy allows transportation agencies to strategically avoid projects in high impact or high-risk areas for the Indiana bat and NLEB. For projects that cannot avoid impacts, project proponents receive information on ways to minimize impacts and preclude the need to revise projects later in their development. For large-scale projects or projects with greater impacts, priority conservation areas may be identified to offset and minimize the impacts of the take. This approach is intended to increase the consistency of both project design and review, reduce consultation process timeframes and delays, and contribute meaningfully to the conservation of both species.

Please note that use of the Range-wide Programmatic Consultation for Indiana Bat and NLEB is optional for Federal transportation projects, and transportation agencies may choose to follow standard section 7 procedures instead. For more information on the Range-wide Programmatic Consultation for Indiana Bat and NLEB, including User Guide and Project Submittal Form documents, visit:

<https://www.fws.gov/Midwest/endangered/section7/fhwa/index.html>

V. MICHIGAN ECOLOGICAL SERVICES FIELD OFFICE CONTACT INFORMATION

Please contact the Michigan Ecological Services Field Office for more information on potential impacts to listed bats as a result of any projects occurring in Michigan.

U.S. Fish and Wildlife Service
Michigan Ecological Services Field Office
2651 Coolidge Road, Suite 101
East Lansing, MI 48823
Phone: 517-351-2555
Fax: 517-351-1443
TTY: 1-800-877-8339 (Federal Relay)
e-mail: EastLansing@fws.gov